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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/693,525 | 10/23/2003 | Bruce Bushey | 24,954-09RE | 7718 |
| | 7590 | 12/13/2004 | EXAMINER | |
| John F Klos Fulbright & Jaworski LLP 2100 I D S Center 80 South Eight Street Minneapolis, MN 55402 | | | JONES, JUDSON | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2834 | |

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,525

Applicant(s)

BUSHEY ET AL.

Examiner

Judson H. Jones

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-21, 27 and 28 is/are allowed.
- 6) ☒ Claim(s) 22-26 and 29-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/23/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 120304.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 29 is objected to because of the following informalities: the limitation of “generating a current level signal” in line 4 lacks antecedent basis because applicant has not established that the motor draws current. In claim 22 applicant recites “said electric motor drawing a variable current level during operation.” Similar language is needed in claim 29. Appropriate correction is required.

Claim 31 is objected to because of the following informalities: the limitation of “measuring a current level of the linear actuator” in line 5 lacks antecedent basis because applicant has not established that the linear actuator draws current. In claim 22 applicant recites “said electric motor drawing a variable current level during operation.” Similar language is needed in claim 31. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 22-26 and 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Karwath et al. 6,825,625 B1. Karwath et al. discloses a control system for an electric actuator

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with a current level sensor 36, a controller 12 for generating a force request signal (output A) and a current limiting component 28 as described in column 3 lines 26 to 46.

In regard to claim 23, see Karwath et al. column 3 lines 41 to 46.

In regard to claim 24, see Karwath et al. column 4 lines 35 ½ -36 ½.

In regard to claims 25 and 27, see Karwath et al. column 3 lines 32-33.

In regard to claims 26 and 30, see Karwath et al. column 5 line 48.

In regard to claim 29, see element 72 in figure 6 for the control component utilizing the comparison signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sternberg 4,351,078 in view of Karwith et al. Sternberg discloses a surface maintenance machine having torque control means comprising a spring bias and a centrifugal control member. Karwith et al. teaches an improved overload protection means using current control instead of torque control, which allows the elimination of a spring. The result is a more reliable machine as the motor control does not change over time as the spring weakens and there is no spring to break. A broken spring could result in a complete loss of motor overload protection. Since Karwith et al. and Sternberg are from the same field of endeavor (motor overload protection), it would have been obvious at the time the invention was made for one of ordinary skill in the art to have

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utilized a current control system instead of a torque control system in a surface maintenance machine in order to improve the reliability and thus extend the useful life of the machine.

Allowable Subject Matter

Claims 1-21, 27 and 28 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach a control system for a linear actuator with current control components and force control components with a force signal going to a load signal generator along with a current feedback signal, with that load signal and a drive signal going to a control device to control the input signal to a load as recited in claim 1. The prior art of record does not disclose or teach a linear actuator with first and second control signals with a comparator that compares the first control signal with a current feedback signal and a control device that accepts the comparison signal and the second control signal as recited in claims 8 and 14. The prior art of record does not disclose or teach a linear actuator control system where a drive signal is held constant for a time period and then compared to a current feedback signal to produce a current limiting signal with the current being limited for a time interval less than the preceding time interval as recited in claim 19. The prior art of record does not disclose or teach a logic device receiving a comparator signal in combination with the other features of claim 27. While logic circuits are well known in the motor control art, no motivation has been found for utilizing such a circuit in the manner recited in claim 27.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

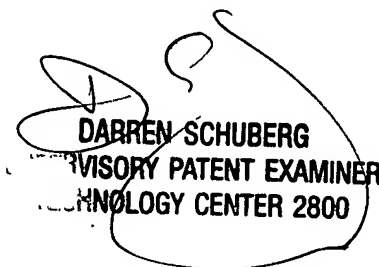
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JHJ 12/3/2004



DARREN SCHUBERG
ADVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800